

<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>				1. CONTRACT ID CODE <div style="text-align: center;">J</div>		PAGE OF PAGES <div style="text-align: center;">1   3</div>	
2. AMENDMENT/MODIFICATION NO. 0002		3. EFFECTIVE DATE 11-Jul-2002		4. REQUISITION/PURCHASE REQ. NO. W22W9K-2130-2646		5. PROJECT NO.(If applicable)	
6. ISSUED BY USA ENGINEER DISTRICT, LOUISVILLE ATTN: CELRL-CT 600 DR. MARTIN LUTHER KING PLACE ROOM 821 LOUISVILLE KY 40202		CODE DACA27		7. ADMINISTERED BY (If other than item 6) CONTRACT ADMINISTRATION BRANCH ATTN: DEBRAUH M. LARDNER P. O. BOX 59 LOUISVILLE KY 40201-0059		CODE DACA27	
8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)				X		9A. AMENDMENT OF SOLICITATION NO. DACW27-02-B-0013	
				X		9B. DATED (SEE ITEM 11) 30-May-2002	
						10A. MOD. OF CONTRACT/ORDER NO.	
						10B. DATED (SEE ITEM 13)	
CODE		FACILITY CODE					
<b>11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS</b>							
<input checked="" type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer <input type="checkbox"/> is extended, <input checked="" type="checkbox"/> is not extended.  Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning <u>  1  </u> copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.							
12. ACCOUNTING AND APPROPRIATION DATA (If required)							
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.							
A.THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.							
B.THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).							
C.THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:							
D.OTHER (Specify type of modification and authority)							
E. IMPORTANT: Contractor <input type="checkbox"/> is not, <input type="checkbox"/> is required to sign this document and return _____ copies to the issuing office.							
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.) Solicitation No. DACW27-02-B-0013 for Upper West Bank and CSO Box, Central Indianapolis Riverfront Development, Indianapolis, IN, is amended as follows:  SEE ATTACHED FOR REVISIONS:							
Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.							
15A. NAME AND TITLE OF SIGNER (Type or print)				16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)			
15B. CONTRACTOR/OFFEROR		15C. DATE SIGNED		16B. UNITED STATES OF AMERICA		16C. DATE SIGNED	
_____ (Signature of person authorized to sign)				BY _____ (Signature of Contracting Officer)		11-Jul-2002	

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

## Changes in Section SF 30

## Amendment 0002

1. At the end of Note 1 on drawings CDC16-6 through CDC16-16 and CDC12-2, add the following:  
“The material stockpiled at McCarty Street contains some construction debris such as broken bricks, chunks of concrete, some wood and utility pipes. During the placement process, the contractor shall remove any materials that do not meet the requirements of Section 02200 and dispose of such material at his expense. Bidders are advised to visit the stockpile site to inspect the available material. Point of contact for site visits is Ladonia Stivers at 317-532-4226. The stockpiled material is located at 535 W. McCarty St. between West St. and Kentucky Ave.
2. Sections 02100, 02271 and 02930 are deleted and replaced with new sections 02100, 02271 and 02930(Amendment #2).
3. At the end of Note 8 on drawing CD S1-1, add the following:  
“Structure No. 76 receives flow from an 8” sewer. Flow varies. Contractor shall provide sufficient pumping capacity for all flow conditions.

\*\*\*Safety Pays\*\*\*  
Amentment 2

SECTION 02100

SITE PREPARATION AND DEMOLITION WORK

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Provide all equipment and do all work necessary to prepare the site, complete, including tree protection, as indicated on the Drawings and as specified.
- B. Contractor shall be responsible for preventing any debris from entering the river. Contractor shall pay any fines incurred as a result of debris entering the river, at no additional cost to the Contracting Officer.
- C. Remove and salvage existing street lights along White River Parkway West for reuse under work of Section 16500, LIGHTING.
- D. Contractor shall coordinate the removal and relocation of existing gas line with the gas company.

1.02 RELATED WORK

- A. Examine Contract Documents for requirements that affect work of this Section. Other Specification Sections that directly relate to work of this Section include, but are not limited to:
  - 1. Section 01568, EROSION AND SEDIMENT CONTROL; Erosion control.
  - 2. Section 02200, EARTHWORK; Excavation and backfill.
  - 3. Section 02930, LAWNS AND GRASSES; Permanent loaming and seeding of new lawns and repair of existing lawns.

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- B. As an erosion control device, the core stone portion of the stone dike is to be constructed at the beginning of the project before any demolition is done, especially demolition of the concrete slope wall, in accordance with paragraph 1.31 of section 00800..

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1.03 REFERENCES

- A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern.
  - 1. American National Standards Institute (ANSI):

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## Amentment 2

Z60.1 American Standard for Nursery Stock  
(Sponsor: American Association of Nurserymen, Inc.)

Z133.1 Safety Requirements for Pruning, Trimming, Repairing, Maintaining and Removing Trees, and for Cutting Brush.

## 2. Indiana Department of Transportation (INDOT):

Specifications Standard Specifications

## 3. International Society of Arboriculture (ISA):

Guide Guide for Establishing Values of Trees and Other Plants

Tree and Shrub Transplanting Manual

## 4. National Arborist Association (NAA):

Ref. 1 Pruning Standards for Shade Trees

## 1.04 SUBMITTALS

## A. The following shall be submitted to the Contracting Officer:

1. Certificates of severance of utility services.
2. Permit for transport and legal disposal of debris.
3. Location plan of staging areas and schedule for moving staging equipment into those areas shall be submitted for Contracting Officer's approval prior to mobilization and related site preparation operations.
4. Schedule of means and methods for protecting existing structures and utilities for review and approval by Contracting Officer prior to start of construction.
5. Gas line relocation schedule.

## 1.05 PROTECTION

- A. Do not interfere with use of adjacent buildings. Maintain free and safe passage to and from.
- B. Cease operations and notify Contracting Officer immediately if safety of the lower or adjacent structures appears to be endangered. Take precautions to properly support structures. Do not resume operations until safety is restored.

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## Amentment 2

- C. Prevent movement, settlement or collapse of adjacent services, sidewalks, pavements and trees. Assume liability for such movement, settlement, or collapse. Promptly repair damage at no cost to the Contracting Officer.
- D. Provide, erect, and maintain tree protection devices, street boardings, sidewalk shed, barricades, lighting, and guardrails as required to protect general public, workers, and adjoining property.

## 1.06 TREE DAMAGE PENALTIES

- A. A fine of \$1,000 will be levied against the Contractor for each incident of construction inside tree protection areas.
- B. Damages to trees, shrubs, and other vegetation will be assessed by the Contracting Officer and Owner in accordance with the ISA Guide.
- C. Trees or roots visibly damaged will cause the Contracting Officer to withhold from the Contractor an assessed amount conforming to the requirements stipulated above for a period of two years. After that period the impact of the damage to any tree will be assessed accordingly.
- D. If any trees or shrubs designated to be saved are damaged and replacement is required, a number and diameter of trees or shrubs of the same species and variety, as specified by the Contracting Officer, shall be furnished and planted by the Contractor. The total inch diameter of the replacement trees or shrubs shall equal the diameter of the tree or shrub to be replaced. The Contractor shall not be liable for any loss or damage which occurs while the Contractor is complying with instructions given by the Contracting Officer, or arborist working on the Project.

## 1.07 EXISTING SERVICES

- A. Arrange and pay for disconnecting, removing, capping, and plugging utility services as indicated on the Drawings. Disconnect and stub off. Notify the affected utility company in advance and obtain approval before starting this work.
- B. Place markers to indicate location of disconnected services. Identify service lines and capping locations of Project Record Documents.
- C. Clean existing underdrainage system to function as originally intended.

## 1.08 MAINTAINING TRAFFIC

- A. Do not close or obstruct roadways without permits.
- B. Conduct operations with minimum interference to public or private roadways.

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## Amentment 2

## 1.09 PERMITS

- A. Obtain from all applicable governmental authorities the necessary permits required. Furnish the Contracting Officer copies of such permits prior to the commencement of any work required herein. Furnish the Contracting Officer proof that the Contractor is in compliance with the Provisions of the Municipal Code of Indianapolis, Indiana.

## 1.10 CONTRACTING OFFICER'S ACCESS

- A. The Contracting Officer and his representatives shall at all times have access to the work in progress. Inspection may be made by the Contracting Officer, at any time, who shall have the right to stop work and to condemn any work, if necessary, that is not in accordance with plans and specifications.

## 1.11 INSPECTION OF SITE AND REPORTS

- A. Prior to performance of the actual work, carefully inspect the entire site and locate those objects and the plant life designated to be preserved.
- B. Not Used.
- C. Not Used.
- D. Verify with the Owner the plants as marked to remain.

## PART 2 PRODUCTS

## 2.01 TREE PROTECTION

- A. Tree protection fencing shall be as indicated on the Drawings and as follows:
  - 1. Galvanized chain link fence, 6 ft. high.

## PART 3 EXECUTION

## 3.01 PROTECTION OF EXISTING TREES - FENCING

- A. Prior to start of demolition work and clearing and grubbing operations, tree protection fencing shall be installed in accordance with the following:
  - 1. Fencing shall be installed at the tree protection areas indicated on the Drawings

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Amentment 2

2. Fencing shall be installed at a minimum of 5 ft. beyond the drip line of trees to be protected, unless otherwise approved by the Contracting Officer.

3.02 ADJUSTING STRUCTURES

- A. Water main valves, manholes, and cable sign support pole located along White River Parkway West may require adjusting as directed in the field by the Contracting Officer.
- B. Concrete floodwall shall be cut down below proposed grade and filled over as indicated on the Drawings.

3.03 CONSTRUCTION PRUNING

- A. To compensate for root zone damage for cut or fill, prune top of tree to match per cent of root zone area that has been damaged.
- B. Construction pruning shall consist of pruning the tree crown to compensate for root zone damage due to construction operations, and to limb up trees to prevent damage from passing construction vehicles. Construction pruning shall include a fertilization/insecticide program. Tree crown should be pruned to the approximate percent of the root zone that has been damaged.
- C. Construction pruning shall conform to NAA Ref.1 for Class IV - Crown Reduction Pruning. Work shall conform to the requirements of ANSI Z133.1.

3.04 CLEARING AND GRUBBING

- A. Trees, shrubs, and other vegetation not indicated on the Drawings or designated in the field by the Contracting Officer to remain and required for execution of the Work shall be cleared and grubbed.

3.05 PROTECTION OF EXISTING STRUCTURES AND UTILITIES

- A. Existing structures and utilities shall be suitably protected from damage, including but not limited to underground structures, traffic signals, street lights and poles, utility lines and poles, water mains, water valves, storm drain and sanitary sewer pipes, electric and sanitary sewer manholes, transformer and meters, concrete sidewalk, limestone blocks, chain link fence, inlet structures and storm structures, and floodwall.

3.06 LOAM AND TOPSOIL

- A. Loam and topsoil shall be stripped to their full depth from areas to be excavated, filled, regraded, or resurfaced.



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## Amentment 2

1. Strip topsoil to whatever depths encountered in a manner to prevent intermingling with underlying subsoil or other objectionable material. Remove heavy growths of grass from areas before stripping.
  - a. Where existing trees are indicated to remain, leave existing topsoil in place within drip lines to prevent damage to root system.
- B. Loam and topsoil shall be stockpiled on-site and protected. No loam and topsoil shall be removed from the site without the written permission of the Contracting Officer.
- C. Stockpiled loam and topsoil which conforms to the specifications may be used for fill and finish grading within landscaped areas.

## 3.07 ABANDONMENT OF EXISTING UTILITIES

- A. Existing 24 in. combined sewer overflow shall be abandoned in place and filled with lean concrete.

## 3.08 PAVEMENT AND CURB REMOVAL

- A. Where indicated on Drawing, and as directed by the Contracting Officer existing asphalt pavement and curb and concrete pavement, handicap ramp and curb shall be removed and legally disposed of off-site, as required by State authorities and in accordance with INDOT Specifications Section 202.05. Where pavement and curb to be removed abuts pavement and curb to remain, a neat, straight saw cut shall be made with a concrete power saw.

## 3.09 REMOVE AND DISPOSE

- A. Materials indicated on the Drawings to be removed shall be dismantled, removed, and legally disposed of off-site or stockpiled as indicated on the Drawings. Removal and demolition work shall be done to the full depth of proposed subgrade at no additional cost to the Contracting Officer.

- B. Materials to be removed and disposed of include but are not limited to the following:

Combination flow sanitary sewer pipe and manhole  
Concrete curbing  
Headwall  
Guardrail  
Concrete sidewalk  
Intake structure  
Trees and debris  
Cut and removed portion of concrete headwall  
Asphalt walkway  
48" Interceptor  
Old abutment  
Intake structure

## \*\*\*Safety Pays\*\*\*

## Amentment 2

Headwall/pipes adjacent to the Michigan Street bridge

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- C. Areas formerly occupied by structures shall be regraded to conform with surrounding topography following demolition.

\*2

## 3.10 REMOVE AND SALVAGE

- A. Materials indicated on the Drawings to be salvaged shall be carefully removed, protected from damage, and put in temporary storage as follows:

1. Salvaged material shall be stockpiled on-site in an area designated by the Contracting Officer.

- B. Salvage material shall include, but not be limited to the following:

Street lights  
Rock monument  
Guy anchor pole (relocated by Ameritech)  
Telephone pole (relocated by Ameritech)

## 3.11 DEMOLITION

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- A. Existing structures indicated on the Drawings to be removed, shall be completely dismantled and removed from the site. Removal and demolition work shall be done to the full depth of proposed subgrade at no additional cost to the Owner.

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1. Existing concrete sloped wall shall be broken up into pieces no larger than 3 in. to 6 in. size. Broken pieces shall remain on site and mixed with off-site "Revetment Stone" as part of the stone dike core stone construction. Refer to Section 02271, STONE DIKE.

2. Prior to demolition of the concrete sloped wall, construction of the core stone portion of the stone dike shall begin and be functioning as an erosion control device.

- B. Areas formerly occupied by structures shall be regraded to conform with surrounding topography following demolition.

## 3.12 DISPOSAL OF MATERIALS

- A. Material resulting from the site preparation work and not scheduled to be salvaged and which is unsuitable for reuse on the project, shall become the property of the Contractor and shall be legally disposed of off-site.

- B. Debris, rubbish, and other material shall be disposed of promptly and shall not be left until final cleanup of site.

SA 41602.00

CENTRAL INDIANAPOLIS RIVERFRONT DEVELOPMENT  
WHITE RIVER URBAN REACH - UPPER WEST BANK SECTION AND CSO BOX  
CONTRACT NO. DACW27-95-C-0083  
INDIANAPOLIS, INDIANA

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Amentment 2

END OF SECTION

May 31, 2002

02100 - 8

SITE PREPARATION AND  
DEMOLITION WORK

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SECTION 02271

STONE DIKE

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Provide all materials and equipment and do all work necessary to perform the stone dike work, complete, as indicated on the Drawings and as specified.

1.02 RELATED WORK

- A. Examine Contract Documents for requirements that affect work of this Section. Other Specification Sections that directly relate to work of this Section include, but are not limited to:
  - 1. Section 01568, EROSION AND SEDIMENT CONTROL; Erosion control.
  - 2. Section 02100, SITE PREPARATION AND DEMOLITION WORK; Demolition of the concrete sloped wall for use in construction of the core stone portion of the stone dike work of this Section.
  - 3. Section 02200, EARTHWORK; Excavation and backfill; silty/clay fill material.
  - 4. Section 02930, LAWNS AND GRASSES; Permanent erosion control fabric.
  - 5. Section 03300, STRUCTURAL CAST-IN-PLACE CONCRETE; Concrete coping.

1.03 REFERENCES

- A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern.
  - 1. American Association of State Highway and Transportation Officials (AASHTO):
    - T 103 Soundness of Aggregates by Freezing and Thawing.
  - 2. American Society for Testing and Materials (ASTM):
    - C 33 Concrete Aggregates
    - C 97 Absorption and Bulk Specific Gravity of Natural Building Stone

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C 150	Portland Cement
C 535	Resistance to Degradation of Large Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
D 1557	Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb. (4.54-kg) Rammer and 18-in. (475-mm) Drop.

3. Indiana Department of Transportation (INDOT):

Specifications	Standard Specifications
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1.04 SUBMITTALS

A. The following samples shall be submitted:

<u>Item</u>	<u>Size and Quantity</u>
Geo-Grid - each type	12 in. x 12 in.
Filter Fabric	12 in. x 12 in.

1. Stone samples: One sample of each of the specified materials (crushed stone (No. 8 Stone), and Indiana Revetment RipRap) and gradation shall be supplied for each stone type. Sample size shall be at least 1/4 ton.

- B. Contractor shall submit test results provided by an approved testing laboratory, for all tests herein specified.
- C. Contractor shall submit experience and qualifications of proposed Geotechnical Consultant for review and approval by Contracting Officer.

1.05 TESTING AND INSPECTION

- A. Work will be subject to inspection at all times by the Contracting Officer and by a Geotechnical Consultant engaged and paid by the Contractor.
- B. The Geotechnical Consultant will make material analyses and gradation inspections as directed by the Contracting Officer, and as described in Paragraph 2.01D., and will submit reports at least biweekly to the Contracting Officer.
  1. The Contracting Officer reserves the right to modify or waive Geotechnical Consultant services.
  2. Control of gradation for Indiana Revetment riprap stone shall be by visual inspection. Provide at a specified location, mass of rock weighing at least 1/4 ton. Sample shall consist of broken pieces of concrete sloped wall mixed with off-site revetment stone and shall become standard for work.

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## 1.06 REUSE OF CONCRETE SLOPED WALL

- A. Maximum reuse shall be made in the new stone dike work of the concrete pieces resulting from the demolition of the concrete sloped wall broken up under the work of Section 02100, SITE PREPARATION AND DEMOLITION. Broken concrete pieces shall be mixed with off-site revetment stone and placed in accordance with the requirements of this Section.

## PART 2 PRODUCTS

## 2.01 STONE

- A. Topping stone for placement behind poured in place concrete coping shall be INDOT Specification Section 904, Size No. 8.

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- B. Core stone for rock dike walls shall consist of broken pieces of the demolished concrete sloped wall demolished under the work of section 02100, SITE PREPARATION AND DEMOLITION and mixed with off-site stone conforming to INDOT Specifications Section 616.02, "Revetment Riprap". For the part of the dike that will function as an erosion control structure during demolition of the slope wall, the core stone shall be the Revetment Riprap (See para. 1.31 of Section 00800).

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- C. Sources from which the stone will be obtained shall be selected immediately following award of contract. Acceptability of the stone will be determined by service records or by tests. Service records shall be submitted to the Contracting Officer within one week following award of Contract. If service records are not approved by the Contracting Officer, quality tests of stone will be required within 30 days.

- D. Testing

1. Suitable samples of stone shall be taken in the presence of the Contracting Officer, at least 21 days in advance of the time when the placing of stone dike is scheduled to begin.
2. The approval of some stone fragments from a particular quarry site shall not be construed as constituting the approval of all stone fragments taken from that quarry.
3. Resistance to disintegration shall be determined by the following tests, which shall be performed by an approved testing laboratory.
  - a. Abrasion test in the Los Angeles machine, ASTM C 535. Stone shall have a loss of not more than 40% after 500 revolutions.

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- b. Freezing and thawing test, AASHTO T 103 for ledge rock, Procedure A, used as a guide to resistance to weathering. Stone shall have a loss not exceeding 10% after 12 cycles of freezing and thawing.
- E. Control of gradation of stone will be by visual inspection.
  - 1. One sample of the specified material and gradation shall be supplied for each stone type. Sample size shall be at least 1/4 ton.
  - 2. Sample shall be delivered to the construction site.
  - 3. After approval by the Contracting Officer, sample shall be used as frequent reference for judging quality and gradation of stone dike supplied.
  - 4. Sample may be used in the final portion of the stone dike installation.
- 2.02 SLOPE WALL
  - A. Slope wall shall be poured in place concrete conforming to Section 03300, STRUCTURAL CAST-IN-PLACE CONCRETE.
- 2.03 COPING
  - A. Coping shall be poured in place concrete coping conforming to Section 03300, STRUCTURAL CAST-IN-PLACE CONCRETE.
- 2.04 FILL MATERIALS
  - A. Granular fill shall conform to Section 02200, EARTHWORK.
  - B. Clay fill shall conform to Section 02200, EARTHWORK.
  - C. Crushed stone shall conform to INDOT Specification Section 904, Size No. 8.
- 2.05 GEOGRID REINFORCEMENT
  - A. Geogrid Reinforcement:
    - 1. Reinforcement at Stone Core: Geogrid reinforcement shall be Tensar Geogrid, Tensar "UX1500SB", as indicated on the Drawings, manufactured by The Tensar Corporation, Morrow, GA30260, or approved equal.
    - 2. Manufacturer's standard "Bodkin Connection" shall be used to secure overlap of geogrid, as indicated on the Drawings.
- 2.06 FILTER FABRIC
  - A. Refer to Section 02200, EARTHWORK.

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## PART 3 EXECUTION

## 3.01 SUBGRADE PREPARATION

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- A. Area to be protected by stone dike shall be free of brush, trees, stumps, and other objectionable material, and shall be dressed to a smooth surface.

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## 3.02 GEO GRID AND FILTER FABRIC

- A. At the time of installation, geogrid and filter fabric shall be inspected to ensure they are free of defects, tears, flaws, deterioration, or damage. The surface to receive geogrid and filter fabric shall be prepared to a relatively smooth condition free of obstructions, depressions, debris, and soft or low density pockets of material. The geogrid and filter fabric shall be placed with the long dimension perpendicular to the shoreline and shall be laid smooth and free of tension, stress, folds, wrinkles, or creases. The strips shall be placed to provide a minimum overlap width of 2 ft. for each joint.
- B. Manufacturer's connections shall be made to secure overlapping geogrid as indicated on the Drawings and in strict accordance with manufacturer's printed instructions.
- C. Geogrid and filter fabric shall be protected from damage due to the placement of material above it by limiting the height of drop of the material.
- D. Geogrid and filter fabric shall be covered immediately after placement and shall not remain exposed to the sun.
- E. Filter fabric alone shall be installed as indicated on the Drawings.

## 3.03 STONE DIKE

- A. Stone dike shall be applied to the areas indicated on the Drawings and coordinated with placement of concrete sloped wall and poured-in-place concrete coping.
- B. Core stones shall be hand (machine) placed on the prepared subgrade, in a more or less definite pattern, with a minimum amount of voids and with the top surface relatively smooth. Joints shall be broken as much as possible, and joint openings to the underlying soil shall be avoided by careful arrangement of the various sizes of stones and by closing the openings with spalls or small rock fragments.
- C. Core stone shall be placed on the prepared slope on geogrid in a manner which will produce a reasonably well graded mass of stone with the minimum practicable percentage of voids. Stone shall be placed to its full course thickness in one operation and in such a manner as to



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avoid displacing the underlying material. Placing of core stone in layers or by dumping into chutes or by similar methods which are likely to cause segregation will not be permitted.

- D. Larger stones shall be well distributed and the entire mass of stone shall conform approximately to the gradation specified. All material going into core stone shall be so placed and distributed that there will be no large accumulations of either the larger or smaller sizes of stone. Exposed stone pores shall not project nor be recessed more than as indicated on the Drawings. Voids between adjacent stones shall not exceed 24 inches square.
- E. It is the intent of these specifications to produce a fairly compact rock dike wall in which all sizes of material are placed in their proper proportions. Hand placing or rearranging of individual stones by mechanical equipment may be required to the extent necessary to secure the results specified.

END OF SECTION

\*\*\*Safety Pays\*\*\*

## Amendment 2

## SECTION 02930

## LAWNS AND GRASSES

## PART 1 GENERAL

## 1.01 WORK INCLUDED

- A. Provide all materials and equipment, and do all work required to complete the seeding, including furnishing and placing topsoil, slope stabilization fabric and related soil amendments, as indicated on the Drawings and as specified.

## 1.02 RELATED WORK

- A. Examine Contract Documents for requirements that affect work of this Section. Other Specification Sections that directly relate to work of this Section include, but are not limited to:
1. Section 02200, EARTHWORK; Establishment of subgrade elevation.
  2. Section 02950, TREES, PLANTS AND GROUND COVERS.

## 1.03 REFERENCES

- A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern.

1. American Society for Testing and Materials (ASTM):

C 136	Sieve Analysis of Fine and Coarse Aggregates
E 11	Wire-Cloth Sieves for Testing Purposes

## 1.04 SUBMITTALS

- A. Samples: The following samples shall be submitted:

<u>Material</u>	<u>Quantity</u>
Fertilizer	10 lb.
Lime	10 lb.
Peat moss	10 lb.
Seed, each mix	1 lb.
Topsoil	50 lb.
Filter fabric	12 in. x 12 in.
Slope stabilization fabric	12 in. x 12 in.

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### Amendment 2

- B. Manufacturer's Product Data: Manufacturer's product data shall be submitted for the following materials:

Aluminum sulfate  
 Fertilizer  
 Filter fabric  
 Slope stabilization fabric

- C. Certificates: Labels from the manufacturer's container certifying that the product meets the specified requirements shall be submitted for the following materials:

Commercial fertilizer  
 Grass seed  
 Ground limestone

#### 1.05 INSPECTION AND TESTING

- A. Work will be subject to inspection at all times by the Contractor. The Contractor shall engage and pay for an independent testing laboratory to analyze and test materials used in the construction of the work. Contractor shall direct the testing laboratory to make material analyses and report to the Contractor whether materials conform to the requirements of this specification.

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1. Cost of tests and material analyses made by the testing laboratory will be borne by the Contractor.

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2. Testing equipment will be provided by and tests performed by the testing laboratory. Upon request by the Contracting Officer, the Contractor shall provide such auxiliary personnel and services needed to accomplish the testing work and to repair damage caused thereby to the permanent work.
3. Gradation of granular materials shall be determined in accordance with ASTM C 136. Sieves for determining material gradation shall be as described in ASTM E 11.

- B. Testing, analyses, and inspection required by the Contractor for his own information or guidance shall be at his own expense.

- C. The Contractor shall engage an independent testing agency to perform the following tests and analyses:

Material	Tests and Analysis Required
Topsoil	Mechanical analysis of soil and determination of pH and organic matter content, and nutrient content. Recommendations shall be made by the testing agency as to the type and quantity of soil additives

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required to bring nutrient content and pH to  
satisfactory levels for seeding.

Peat Moss

Determination of moisture absorption capacity,  
organic matter content, and pH.

1. Materials shall not be used in construction until test results have been reviewed by the Contracting Officer.
2. All costs associated with testing shall be at the expense of the Contractor.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver seed in original sealed containers, labeled with analysis of seed mixture, percentage of pure seed, year of production, net weight, date of packaging, location of packaging, and name of seed grower. Damaged packages will not be accepted.
- B. Seed shall be stored under cool and dry conditions so that the endophytic seed in the mixture is capable of maintaining a high level of endophytes
- C. Deliver fertilizer in sealed waterproof bags, printed with manufacturer's name, weight, and guaranteed analysis.

1.07 PLANTING SEASON

- A. Planting season shall be as follows:

Material

Planting Season

Seeding

April 1 through November 15

- B. Planting shall only be performed when weather and soil conditions are suitable for planting the material specified in accordance with locally accepted practice.
  1. Seeding without mulch shall not be done between May 1 and August 15.
- C. Planting season may be extended with the written permission of the Contracting Officer.

1.08 ACCEPTANCE

- A. Acceptance:

1. The Contracting Officer will inspect all work for Substantial Completion upon written request of the Contractor. The request shall be received at least ten calendar days before the anticipated date of inspection.
2. Acceptance of material by the Contracting Officer will be for general conformance to

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specified requirements, and shall not relieve the Contractor of responsibility for full conformance to the Contract Documents.

3. Upon completion and reinspection of all repairs or renewals necessary in the judgement of the Contracting Officer, the Contracting Officer will recommend that the work of this Section be accepted.

B. Seed areas will be accepted when in compliance with all the following conditions:

1. All areas show a uniform stand of specified grass in healthy condition;
2. At least 60 days have elapsed since the completion of work under this Section.

## PART 2 PRODUCTS

### 2.01 SEED

- A. Seed mixture: Standard grade seed of the most recent season's crop complying with the Association of Official Seed Analysts' "Rules for Testing Seeds" for purity and germination tolerances. Seed shall be dry and free of mold. Seed shall be inoculated with endophytes. Seed mixture shall be as follows:

#### SEED MIX - GRASS

<u>Name of Seed</u>	<u>% by Weight in Mixture</u>	<u>Minimum % Purity</u>	<u>Minimum % Germination</u>
Kentucky Blue- grass Cultivars	50	90	90
Festuca rubra - "rubra" Chewings Red Fescue	30	98	85
Lolium perenne "Pennfine" Pennfine Ryegrass	10	98	90
Agrostis alba Redtop	10	92	85

### 2.02 TOPSOIL

**\*2**

- A. Topsoil required shall be obtained from off-site sources at the contractor's expense and shall be a sandy loam or loam soil as defined by the USDA Soil Conservation Service, Soil Classification System, and shall have the following mechanical analysis:

Textural Class	% of Total Weight	Average %
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Sand (0.05-2.0 mm dia. range)	45 to 75	60
Silt (0.002-0.05 mm dia. range)	15 to 35	25
Clay (less than 0.002 mm dia. range)	5 to 25	15

1. 95% of topsoil shall pass a 2.0 mm sieve.

**\*2**

2. Topsoil shall be free of stones 1 in. in longest dimension, earth clods, plant parts, and debris.
3. Organic matter content shall be 4 to 12% of total dry weight.

- B. Topsoil shall have a pH value range of 6.0 to 6.5.

1. If pH is below desired level add ground limestone. If pH is above desired level add aluminum sulfate.

#### 2.03 PEAT MOSS

- A. Peat moss shall be a horticultural grade, sphagnum peat moss containing partially decomposed fibrous or cellular stems and leaves of any of the many species of sphagnum mosses from fresh water sources conforming to the following requirements:

1. Peat moss shall be a homogenous material free of decomposed colloidal residue lumps, roots, stones, and other foreign matter; and of such consistency that peat can be pass a 1/2 in. mesh and can be readily incorporated with the topsoil.
2. The pH shall not be less than 3.5 nor greater than 6.0 at 25 degrees C.
3. Organic matter content shall be not less than 90%, by weight, on an oven-dry basis.
4. Ash content shall not be more than 10%, by weight, on an oven-dry basis.
5. Moisture absorption capacity shall not be less than 800%, by weight, on an oven-dry basis.

#### 2.04 LIMESTONE

- A. Ground limestone shall be an agricultural limestone containing a minimum of 85% total carbonates, by weight. Ground limestone shall be graded within the following limits:

<u>Sieve Size</u>	<u>% Passing by Weight</u>
No. 10	100
No. 20	90
No. 100	60

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## 2.05 WATER

- A. Water shall be suitable for irrigation and free from ingredients harmful to seeded areas.

## 2.06 ALUMINUM SULFATE

- A. Aluminum sulfate shall be unadulterated and shall be delivered in containers with the name of the material and manufacturer, and net weight of contents.

## 2.07 COMMERCIAL FERTILIZER

- A. Starter fertilizer shall be HD Scotts Starter Fertilizer or approved equal.
- B. Fertilizer shall conform to the following:
  - 1. When applied as a topsoil amendment, fertilizer shall have an analysis that will deliver appropriate amounts of nitrogen, phosphorus, and potassium as required to remedy deficiencies revealed by testing the topsoil.
- C. Fertilizer shall be delivered in manufacturer's standard container printed with manufacturer's name, material weight, and guaranteed analysis.
- D. Fertilizers with NP-K analysis other than that stated above may be used provided that the application rate per square foot of nitrogen, phosphorus, and potassium is equal to that specified.

## 2.08 SUPERPHOSPHATE

- A. Superphosphate shall be composed of finely ground phosphate rock as commonly used for agricultural purposes, and containing not less than 20% available phosphoric acid. The superphosphate shall be delivered to the site in the original unopened containers, each bearing the manufacturer's guaranteed analysis. Any superphosphate which becomes caked or otherwise damaged making it unsuitable for use, will be rejected.

## 2.09 CELLULOSE FIBER MULCH

- A. Cellulose fiber mulch shall be composed of virgin wood, contain a green color additive, be weed free, and non-polluting, containing no germination or growth - inhibiting factors, similar to Hydro Mulch, manufactured by Conwed Corporation, St. Paul, Minnesota 55113.

## 2.10 FILTER FABRIC

- A. Filter fabric shall be a non-woven polypropylene fabric made specifically for use in subsurface drainage structures equal to Mirafi 140N, manufactured by Mirafi, Inc., Charlotte, NC 28224, or approved equal.

## 2.11 SOIL STABILIZATION FABRIC

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- A. Soil stabilization fabric shall be "Enkamat 7010", three dimensional geomatrix of heavy nylon filaments fused at their intersections with 95% open space available for soil and root interaction with filaments, manufactured by Akzo Nobel Geosynthetics Company, Asheville, NC 28802; Tensar Erosion Blanket "TB 1000", manufactured by The Tensar Corporation, Morrow, GA30260, or approved equal.
- B. Staple for anchoring erosion control netting shall be No. 8 gage steel wire, bent U-shaped, with throat width of 1 to 2 in. and effective driving depth not less than 8 in.

## PART 3 EXECUTION

## 3.01 PREPARATION OF SUBGRADE

- A. Subgrade shall be examined to ensure that rough grading and all other subsurface work in lawn areas and other areas to be seeded is done prior to start of seeding.
- B. Existing subgrade shall be loosened or scarified to a minimum depth of 3 in. prior to spreading topsoil. Subgrade shall be brought to true and uniform grade, and shall be cleared of stones greater than 3 in., sticks, and other extraneous material.

## 3.02 FILTER FABRIC

- A. Filter fabric shall be installed between compacted aggregate base and topsoil beneath proposed lawn areas as indicated on the Drawings. Filter fabric shall overlap a minimum of 8 in.

## 3.03 SPREADING OF TOPSOIL

- A. Topsoil shall not be spread until it is possible to follow immediately or within 24 hours with seeding operations. If topsoil is spread prior to this time it shall be cultivated to loosen soil prior to seeding.
- B. Topsoil shall not be placed when subgrade or topsoil material are frozen, excessively wet, or excessively dry.

**\*2**

- C. Topsoil shall be spread over installed filter fabric in a uniform layer, to a thickness which will compact to the depth required to bring final lawn and grass surfaces to required elevation.

**\*2**

- D. Surfaces shall be graded and smoothed, eliminating all sharp breaks by rounding, scraping off bumps and ridges, and filling in holes and cuts.

## 3.04 APPLICATION OF FERTILIZER AND CONDITIONERS

- A. Fertilizer and conditioners shall be applied at the following rates:



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1. Peat moss - as required by test results of topsoil.
  2. Limestone - as required by test results of topsoil.
  3. Fertilizer - as required by test results of topsoil.
- B. Mixing with topsoil:
1. Fertilizer and conditioners shall be spread over the entire lawn areas at the application rates indicated above.
  2. Materials shall be uniformly and thoroughly mixed into the top 4 in. of topsoil by discing, rototilling, or other approved method.

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### 3.05 FINISH GRADING

- A. Final surface of topsoil immediately before seeding shall be within  $\pm 1/2$  in. of required elevation, with no ruts, mounds, ridges, or other faults, and no pockets or low spots in which water can collect. Stones, roots, and other debris greater than 1 in. in any dimension, which are visible at the surface, shall be removed and the resulting holes filled with topsoil, leaving a uniform planar surface.
- B. Finish grade surface with a drag or rake. Round out all breaks in grade, smooth down all lumps and ridges, fill in all holes and crevices. Rolling with a light roller is acceptable, if the surface is scarified afterward.
- C. In the event of settlement, the Contractor shall readjust the work to required finished grade.
- D. Moisten prepared seed bed before planting when soil is dry. Water thoroughly but do not create muddy condition.

### 3.06 SOIL STABILIZATION FABRIC

- A. After completion of loaming and finish grading at slopes 3:1 or greater, soil stabilization fabric shall be unrolled parallel to direction of slope, without stretching, and anchored with staples. Netting shall be spread even and smooth, starting at low point and working up-slope.
  - 1. Up slope section and bottom slope section shall be buried to a minimum depth of 6 in. in a vertical slot, backfilled, and tamped. Subsequent up-channel sections shall be overlapped 12 in.
  - 2. Where two or more widths are placed side by side, edges shall overlap by not less than 4 in., and shall be stapled along overlap at 3 ft. intervals.
  - 3. Where required to maintain netting in place, each square yard of netting shall be anchored with a minimum of two staples.

### 3.07 SEED APPLICATION

- A. Seed shall be broadcast by means of an approved mechanical spreader, to give a uniform application at the following rates:

Seed

Application Rate

lb./1,000 s.f.

Seed Mixture - Grass

6

- B. Seed shall be applied in two equal applications for uniform coverage; direction of travel of

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spreader for second pass shall be perpendicular to that of the first pass. Seeding shall not be done when it is raining or snowing, or when wind velocity exceeds 5 mph.

- C. At the Contractor's option, and with the permission of the Contracting Officer, seed for lawn areas may be spread by the hydroseeding method, utilizing power equipment commonly used for that purpose. Hydroseeding shall not be permitted for wildflower seeding.
1. Seed shall be applied in two equal applications for uniform coverage; direction of second pass shall be perpendicular to that of the first pass. Seeding shall not be done when it is raining or snowing, or when wind velocity exceeds 5 mph.
  2. Seed, lime, fertilizer, and mulch shall be mixed and applied to achieve application quantities specified herein for the conventional seeding method, with mulch applied at the rate of 1,200 lb./acre. Other provisions specified above for conventional seeding shall apply also to hydroseeding.
  3. Mulch shall be applied in two stages with 5% to 10% of the quantity applied with seed and the balance applied separately.
  4. Seed shall not be placed in water until immediately before application.
  5. Centrifugal pumps shall not be used to apply seed mix without fiber mulch. Hand broadcast or use gear pump.
- C. Following seeding the area shall be lightly raked to mingle seed with top 1/8 to 1/4 in. of soil. Area shall then be fine graded. Stones and other debris greater than 1 in. in any dimension which are visible on surface shall be removed. Surface shall be rolled with a hand roller having a weight of 60 to 90 lb./ft. of width, and a minimum diameter of 2 ft.
- D. Following seeding and raking, entire area shall be watered by use of lawn sprinklers, or other approved means. Initial watering shall continue until the equivalent of a 2 in. depth of water has been applied to entire seeded surface, at a rate which will not dislodge the seed. Watering shall be repeated thereafter as frequently as required to prevent drying of the surface, until the grass attains an average height of 1/4 in. Watering methods and apparatus which may cause erosion of the surface shall not be permitted.
- E. Rope off entire seeded area to prevent vehicles and pedestrians from entering area.

## 3.08 MAINTENANCE

- A. Except as otherwise specified below, maintenance shall include all operations required to produce an established lawn, including but not limited to:

Fertilizing  
Mowing

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Replanting  
 Watering  
 Weeding

- B. Maintenance of seeded areas shall begin upon completion of seeding and shall continue until mowing as specified below is completed, or until average height of grass is 1-1/2 in., whichever occurs later.
- C. After grass has sprouted, seeded areas which fail to show a uniform stand of grass shall be replanted as often as necessary to establish an acceptable stand of grass.
  - 1. Scattered bare spots, shall not exceed 15 sq. in. each.
- D. First mowing shall be done when average height of grass is 2-1/2 in., with mower set to cut at a height of 1-1/2 in. Subsequent mowings shall be made at not over two week intervals, with the height of cut set at 1-1/2 in. With prior permission of the Contracting Officer, mowings during periods of slow growth or dormancy may be spaced at greater intervals.
- E. Weeds and growth other than varieties of grass named in grass seed formula shall be removed. Removal may be accomplished by use of suitable herbicides or by physical removal, in which case top growth and roots shall both be removed, and bare spots exceeding specified limits shall be reseeded.
- F. If lawn or grass is established in the fall and maintenance is required to continue into spring months, lawn and grass shall receive an application of lime and fertilizer in the spring. Lime and fertilizer shall be spread in a uniform layer over the entire lawn surface, at the following rates.

<u>Material</u>	<u>Application Rate</u>
Lime	100 lb./1000 sq. ft.
Fertilizer	20 lb./1000 sq. ft.

- G. Remove rope barricades only after second cutting of lawns.

END OF SECTION